

A review of *Amauroderma* in Brazil, with *A. oblongisporum* newly recorded from the neotropics

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Abstract — Twenty species of *Amauroderma* are accepted from Brazil. *Amauroderma oblongisporum* is for the first time recorded for the neotropics and is described and illustrated. It is characterized by oblong ellipsoid, hyaline to pale yellowish basidiospores, with slightly protruding endosporic projections. A checklist and key to the Brazilian species of *Amauroderma* are presented.

Key words — *Basidiomycota*, *Ganodermataceae*, taxonomy

Introduction

Since Murrill (1905) proposed the genus *Amauroderma* (*Ganodermataceae*, *Polyporales*), their species have been studied primarily by Ryvar den & Johansen (1980), Furtado (1981), Corner (1983), and Moncalvo & Ryvar den (1997), who have made major contributions to the nomenclature and taxonomy of the genus.

Amauroderma is a widespread tropical genus with around 30 species (Kirk et al. 2008) that usually occurs on roots of living or dead trees (sometimes appearing as if emerged from the soil) or, more rarely, wood inhabiting (Furtado 1981, Ryvar den 2004a,b) and causes a white rot. The genus is distinguished by round to oblong ellipsoid double-walled basidiospores with a smooth exosporium and a columnar endosporium (Nuñez & Ryvar den 2000, Ryvar den 2004b); basidiomata are stipitate and generally brown in most species but sessile, dimidiate, and wood-inhabiting in *A. africana* Ryvar den and *A. andina* Ryvar den (Ryvar den 2004a). The structure of the pilear cover is also considered taxonomically significant in the genus (Furtado 1981).

During a survey of *Ganodermataceae* in the Atlantic Rain Forest of São Paulo State, Southeast Brazil, we found an *Amauroderma* specimen deposited in the herbarium SP with oblong ellipsoid, hyaline to pale yellowish basidiospores with slightly protruding endosporic projections. Of the 21 *Amauroderma* species registered from the neotropics (Ryvar den 2004b), none exhibited

the characters above. After checking the literature on *Ganodermataceae*, we identified the species as *A. oblongisporum*.

The aim of this study is to review the knowledge of the genus *Amauroderma* (*Ganodermataceae*) from Brazil.

Materials and methods

The specimen was collected in a remnant of the Atlantic Rain Forest in the Parque Estadual das Fontes do Ipiranga (23°38'00"–23°40'18"S and 46°36'48"–46°38'08"W, 549.31 ha), municipality of São Paulo, São Paulo State, Brazil (Bicudo et al. 2002), and was deposited in SP herbarium (Holmgren & Holmgren 1998).

The material was examined following Ryvarden (1991, 2004b). Micromorphological observations were made from material mounted in 5% KOH and Melzer's reagent; measurements were made in 5% KOH through LAS ES Version 1.4.0. software in a Leica DM 1000 microscope.

Literature on *Ganodermataceae* was also consulted in generate a list of *Amauroderma* species previously recorded from Brazil.

Taxonomy

New to the neotropics

Twenty species of *Amauroderma* are accepted from Brazil. *Amauroderma oblongisporum*, a new record for the neotropics, is distinguished by its oblong ellipsoid, hyaline to pale yellowish basidiospores with slightly protruding endosporic projections.

Amauroderma oblongisporum J.S. Furtado, Revis. Gên. *Amauroderma*:

208, 1968.

Figs. 1–3

≡ *Polyporus fuscatus* Lloyd, Mycol. Writ. 6: 942. 1920, nom.

illegit., non *Polyporus fuscatus* Fr. 1818.

≡ *Amauroderma fuscatum* Otieno, Sydowia 22: 175, 1969, nom. nov. superfl.

BASIDIOMA annual, stipitate, single mesopodal to pseudomesopodal with several pilei from a common stipe, woody to sub-woody, convex when small to concave when well developed. **PILEUS** circular, margin inflexed when dry, 3–4 cm diam, up to 0.7 cm thick; abhymenial surface pale brown to deep brown, dull, concentrically zoned, glabrous. **CONTEXT** homogeneous, concolorous to slightly paler than the upper surface, 0.4 cm thick. **HYMENIAL SURFACE** poroid, concolorous with the context, pores round, 4–5/mm; tubes concolorous, up to 3 mm deep. **STIPE** central, deep brown, single or branched, 6.5–13.5 × 0.3–0.6 cm, swollen at the base where the stipes are fused. **PILEAR COVER** a cortex with slight incrustation. **HYPHAL SYSTEM** trimitic; generative hyphae with clamps, hyaline, thin-walled, 3.75–6.25 µm diam; skeletal hyphae arboriform to



FIGS. 1-3. *Amauroderma oblongisporum*. 1. Basidiomata, 2. Basidiospores, 3. Pilear cover.

aciculiform, subhyaline to pale yellowish, thick-walled, 5–12.5 µm diam, up to 1.25–3.75 µm diam in the apices; binding hyphae much branched, subhyaline to pale yellowish, thick-walled to almost solid, 2.5–5 µm diam. BASIDIA not seen. BASIDIOSPORES oblong ellipsoid, hyaline to pale yellowish with slightly

protruding endosporic projections, $10\text{--}12.5 \times 6.25\text{--}7.5\ \mu\text{m}$, negative in Melzer's reagent.

MATERIAL EXAMINED: BRAZIL. SÃO PAULO STATE: São Paulo, Parque Estadual das Fontes do Ipiranga, 2.I.1970, B. Skvortzov s.n. (SP 107239).

DISTRIBUTION: previously known only from tropical Africa (Furtado 1981, Ryvar den & Johansen 1980, Moncalvo & Ryvar den 1997).

REMARKS: *Amauroderma oblongisporum* may be recognized by its basidiomata with several pilei originating from a common stipe, a feature also described by Ryvar den & Johansen (1980). However these authors reported smaller (5–8 per mm) pores, while the examined material has 4–5 pores per mm, as also described by Furtado (1981). The species is microscopically distinguished by oblong ellipsoid basidiospores, up to $13\ \mu\text{m}$ long and $8\ \mu\text{m}$ wide and with slightly protruding endosporic projections (Furtado 1981, Ryvar den & Johansen 1981). The cystidioles reported by Ryvar den & Johansen (1981) were not observed.

Amauroderma elegantissimum, which also occurs in Brazil, produces a similar basidioma with thin stipe and ellipsoid, thin-walled, very finely ornamented basidiospores (Ryvar den 2004b). It is distinguished from *A. oblongisporum* by larger ($12\text{--}15 \times 8\text{--}10\ \mu\text{m}$) basidiospores, slightly smaller (5–7/mm) pores, and tramal tissues containing dark-brown, short, setae-like skeletal hyphae with rounded to pointed apices, some with a few lateral $3\text{--}12 \times <180\ \mu\text{m}$ protuberances or outgrowths (Ryvar den 2004b).

Moncalvo & Ryvar den (1997), who stated that *A. oblongisporum* is a superfluous name, cited *A. fuscatum* as the correct name for the species. However, as both represent new names proposed for the illegitimate *Polyporus fuscatus* Lloyd, the earlier name (*A. oblongisporum* Furtado 1968) is correct and the later *A. fuscatum* (Otieno 1969) is superfluous.

***Amauroderma* species previously recorded in Brazil**

Amauroderma aurantiacum (Torrend) Gibertoni & Bernicchia,

Mycotaxon 104: 322. 2008.

For synonymy, see Gibertoni et al. (2008).

DESCRIPTION: Furtado (1981), Ryvar den (2004b), as *A. macrosporum* J.S. Furtado.

DISTRIBUTION: Brazil and Venezuela (Ryvar den 2004b). In Brazil cited from Goiás (type locality), Rondônia, Sergipe, São Paulo (type locality of *A. macrosporum*, Bononi et al. 1981, Furtado 1981, Ryvar den 2004b, Gibertoni et al. 2004, 2007, 2008).

REMARKS: Meijer (2006) reported the occurrence of *Amauroderma* cf. *macrosporum* in Paraná State. Previous records of *A. macrosporum* from Sergipe State (Gibertoni et al. 2004) and from Pará State (Sotão et al. 1997, 2002) were re-identified as *A. calcigenum* and *A. schomburgkii*, respectively by Gibertoni et al. (2008).

Amauroderma boleticeum (Pat. & Gaillard) Torrend,
Broteria, ser. Bot. 18: 132, 1920.

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: known from southern Brazil to Venezuela and Colombia (Ryvarden 2004b). In Brazil cited from Pará, Bahia, Mato Grosso (Furtado 1981, Góes-Neto 1999).

Amauroderma brasiliense (Singer) Ryvarden, Syn. Fung. (Oslo) 19: 44, 2004.
For synonymy, see Coelho et al. (2007).

DESCRIPTION: Ryvarden (2004b), Coelho et al. (2007).

DISTRIBUTION: Brazil and Venezuela (Ryvarden 2004b). In Brazil cited from Amazonas (type locality of *A. brasiliense*), Rondônia, São Paulo (type locality of syn. *A. corneri* Gulaid & Ryvarden), Paraná, Santa Catarina, Rio Grande do Sul States (Singer et al. 1983, Gulaid & Ryvarden 1998, Ryvarden & Meijer 2002, Groposo & Loguercio-Leite 2005, Meijer 2006, Coelho et al. 2007).

Amauroderma calcigenum (Berk.) Torrend, Broteria, ser. bot. 18: 129, 1920.
For synonymy, see Furtado (1981), Ryvarden (1984).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil to Venezuela and Guyana; probably widespread throughout the Amazonian basin (Ryvarden 2004b). In Brazil cited from Amazonas (type locality of syns. *Polyporus partitus* Berk. and *Hexagonia gracilis* Berk.), Sergipe, Bahia (type locality of syn. *P. torrendii* Lloyd), Goiás (type locality of *A. calcigenum*), Mato Grosso, Rio de Janeiro, São Paulo, Santa Catarina, Rio Grande do Sul (Torrend 1920, Rick, 1960, Furtado 1981, Corner 1983, Ryvarden 1984, Góes-Neto 1999, Gibertoni et al. 2008).

Amauroderma camerarium (Berk.) J.S. Furtado,
Revis. Gên. *Amauroderma*: 140, 1968.

For synonymy, see Furtado (1981), Ryvarden (1984).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil, Cuba, Belize, Venezuela, Peru, Honduras, Colombia (Furtado 1981, Ryvarden 2004b). In Brazil cited from Amazonas (type locality of *A. camerarium* and syns. *Polyporus pallidus* Berk., *P. variabilis* Berk., *P. polydactylus* Berk.), Bahia, Mato Grosso, Pernambuco, Rio de Janeiro, Rio Grande do Sul (type locality of syn. *P. inopinus* Lloyd), Paraná, Santa Catarina (Torrend 1920, Batista 1949, Maia 1960 as *A. trulliforme* (Lloyd) Torrend, Rick 1960, Furtado 1981, Ryvarden 1984, Rajchenberg & Meijer 1990, Silveira & Guerrero 1991, Groposo & Loguercio-Leite 2005, Góes-Neto 1999, Maia et al. 2002, Ryvarden & Meijer 2002). Meijer (2006) also reported *Amauroderma* cf. *camerarium* for Paraná State.

Amauroderma coltricioides T.W. Henkel, Aime & Ryvarden,
Mycologia 95(4): 615, 2003.

DESCRIPTION: Ryvarden (2004b).

DISTRIBUTION: Guyana (type locality) and Brazil (Rio Grande do Sul; see Silveira et al. 2008).

Amauroderma elegantissimum Ryvarden & Iturr.,

Syn. Fung. (Oslo) 19: 54, 2004.

DESCRIPTION: Ryvarden (2004b).

DISTRIBUTION: Venezuela (type locality), Brazil (Roraima state), Guyana (Ryvarden 2004b).

Amauroderma exile (Berk.) Torrend, Broteria, ser. bot. 18: 142, 1920.

For synonymy, see Furtado (1981), Ryvarden (1984).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Indonesia, China, and tropical America (Zhao 1989, Moncalvo & Ryvarden 1997), where it is probably widespread in the Amazonian basin and known southern Brazil to Venezuela and Colombia and (Ryvarden 2004b). In Brazil cited from Amazonas (type locality of *Polyporus exilis* Berk. and syns. *P. renatus* Berk., *P. marasmiioides* Berk., *P. parmula* Berk., *P. macer* Berk., *P. passerinus* Berk., *P. procerus* Berk.), Pernambuco, Bahia, Rio de Janeiro, Rio Grande do Sul (Hennings 1904b, Torrend 1920 & 1938, Rick 1960, Furtado 1981, Corner 1983, Ryvarden 1984, Góes-Neto 1999, Maia et al. 2002).

Amauroderma fasciculatum (Pat.) Torrend, Broteria, ser. bot. 18: 139, 1920.

For synonymy, see Furtado (1981).

DESCRIPTION: Ryvarden & Johansen (1980), Furtado (1981).

DISTRIBUTION: Africa (Furtado 1981, Ryvarden & Johansen 1980) and Brazil, where it is cited from Acre (Bononi 1992) and Pernambuco (Góes-Neto & Baseia 2006).

REMARKS: Maia (1960) reported the occurrence of the synonymous *A. trulliforme* in Bahia State, but the specimen was examined later by Furtado (1981, whom we follow) and re-identified as *A. camerarium*.

Amauroderma omphalodes (Berk.) Torrend, Broteria, ser. bot. 18: 131, 1920.

For synonymy, see Furtado (1981).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil to Venezuela and Colombia; probably widespread in the Amazonian basin (Ryvarden 2004b). In Brazil cited from Amazonas (type locality of *Polyporus omphalodes* Berk. and syn. *P. pansus* Berk.), Sergipe, Alagoas, Pernambuco, Bahia, Mato Grosso, Rio de Janeiro, Paraná, Santa Catarina (Hennings 1900, 1904b, Torrend 1920, Furtado 1981, Ryvarden 1984, Loguercio-Leite & Wright 1991, Góes-Neto 1999, Maia et al. 2002, Ryvarden & Meijer 2002, Gibertoni & Cavalcanti 2003, Góes-Neto et al. 2003, Gibertoni et al. 2004, 2007, Góes-Neto & Baseia 2006, Drechsler-Santos et al. 2008).

Amauroderma praetervisum (Pat.) Torrend, Broteria, ser. bot. 18: 131, 1920.

For synonymy, see Furtado (1981).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil, Belize, Costa Rica, and Mexico (Ryvarden 2004b). In Brazil cited from Pará, Paraíba, Pernambuco, Bahia, Rio de Janeiro (type locality of syn. *Fomes auriscalpioides* Henn.), Mato Grosso, Paraná (Hennings 1904a, Torrend 1920, Batista 1949, Furtado 1981, Góes-Neto 1999, Maia et al. 2002, Gibertoni et al.

2004, 2007). Meijer (2006) reported the occurrence of *Amauroderma* cf. *praetervisum* in Paraná State.

***Amauroderma pseudoboletus* (Speg.) J.S. Furtado,**

Revis. Gên. *Amauroderma*: 230, 1968.

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil to Venezuela and Colombia and probably widespread in the Amazonian basin (Ryvarden 2004b). In Brazil cited from Rio de Janeiro, São Paulo, Paraná, Rio Grande do Sul (Bononi et al. 1981, Furtado 1981, Ryvarden & Meijer 2002). Meijer (2006) reported the occurrence of *Amauroderma* cf. *pseudoboletus* in Paraná State.

REMARKS: *Amauroderma pseudoboletus* is treated as a synonym of *A. rude* in the CABI (<<http://www.indexfungorum.org>>) and CBS *Aphylllophorales* (<<http://www.cbs.knaw.nl>>) databases. However, Furtado (1981) and Ryvarden (2004b) differentiate *A. pseudoboletus* with a cortex-like pileipellis and larger (12–13 × 9–11 µm) basidiospores from *A. rude* with a derm-like pileipellis and smaller (9–11 × 7.5–9 µm) basidiospores. We also consider *A. pseudoboletus* an independent taxon

***Amauroderma renidens* (Bres.) Torrend, Broteria, ser. bot. 18: 136, 1920.**

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Brazil [Santa Catarina (type locality), Mato Grosso do Sul, Bahia States; see Torrend 1920, Furtado 1981, Góes-Neto 1999, Ryvarden 2004b, Bononi et al. 2008).

***Amauroderma rude* (Berk.) Torrend, Broteria, ser. bot. 18: 127, 1920.**

DESCRIPTION: Furtado (1981), Ryvarden (2004b as *A. intermedium* (Bres. & Pat.) Torrend).

DISTRIBUTION: China, Australia, Africa (Zhao 1989), tropical America (from Paraguay to Puerto Rico; cf. Ryvarden 2004b). In Brazil cited from Amazonas, Pernambuco, Bahia, Rio de Janeiro, São Paulo, Paraná, Santa Catarina (Torrend 1920, Batista 1949, Bononi et al. 1981, Furtado 1981, Góes-Neto 1999, Maia et al. 2002, Ryvarden & Meijer 2002).

REMARKS: Furtado (1981) considers *Amauroderma intermedium* a variety of *A. rude* based on microscopical similarities and intergrading macroscopic characters. Ryvarden (2004b), however, considers *A. intermedium* an independent taxon. The CABI (<<http://www.indexfungorum.org>>) and CBS *Aphylllophorales* (<<http://www.cbs.knaw.nl>>) databases list *A. intermedium* as a synonym of *A. rude*.

***Amauroderma schomburgkii* (Mont. & Berk.) Torrend,**

Broteria, ser. bot. 18: 140, 1920.

For synonymy, see Furtado (1981), Ryvarden (1984).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil to Cuba, Puerto Rico, Jamaica and (seemingly) the most common, locally abundant neotropical *Amauroderma* species (Ryvarden 2004b).

In Brazil cited from Amazonas (type locality of syns. *Polyporus brunneopictus* Berk., *P. cassicolor* Berk., *P. ocellatus* Berk., *P. xylodes* Berk.), Rondônia, Pará, Sergipe, Pernambuco, Bahia (type locality of syns. *P. papillatus* Lloyd, *A. gusmanianum* Torrend, *A. mosselmanii* Torrend), Mato Grosso, Rio de Janeiro, São Paulo, Paraná and Rio Grande do Sul (Torrend 1920, 1938, Batista 1949, Bononi et al. 1981, Furtado 1981, Corner 1983, Ryvarden 1984, Capelari & Maziero 1988, Rajchenberg & Meijer 1990, Góes-Neto 1999, Maia et al. 2002, Ryvarden & Meijer 2002, Sotão et al. 2002, Gibertoni et al. 2004, 2007, 2008, Meijer 2006).

***Amauroderma sprucei* (Pat.) Torrend, Broteria, ser. bot. 18: 125, 1920.**

For synonymy, see Furtado (1981), Ryvarden (1984).

DESCRIPTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Southern Brazil to Belize, Cuba, Colombia, Puerto Rico, and Jamaica (Ryvarden 2004b, Decock & Herrera Figueroa 2006). In Brazil cited from Amazonas (type locality of syn. *Porothelium rugosum* Berk.), Pará, Sergipe, Pernambuco, Mato Grosso, Minas Gerais (type locality of syn. *Polyporus dubiopansus* Lloyd), Rio de Janeiro, São Paulo (type locality of syn. *Fomes paulensis* Henn.), Paraná, Rio Grande do Sul (Hennings 1904c, Torrend 1920, Rick 1960, Bononi et al. 1981, Furtado 1981, Corner 1983, Ryvarden 1984, 1990, Rajchenberg & Meijer 1990, Ryvarden & Meijer 2002, Sotão et al. 2002, Gibertoni et al. 2004, 2007).

***Amauroderma subrugosum* (Bres. & Pat.) Torrend,
Broteria, ser. bot. 18: 128, 1920.**

DESCRIPTION: Furtado (1981).

DISTRIBUTION: Throughout the tropics, including southern China and Japan (Moncalvo & Ryvarden 1997). In Brazil cited from Pará (Sotão et al. 1997, 2002).

***Amauroderma trichodematum* J.S. Furtado,
Revis. Gên. *Amauroderma*: 311, 1968.**

DISTRIBUTION: Furtado (1981), Ryvarden (2004b).

DISTRIBUTION: Venezuela and Brazil. In Brazil cited from Pará (type locality) and Paraná (Furtado 1981, Ryvarden & Meijer 2002, Ryvarden 2004b, Meijer 2006).

***Amauroderma unilaterum* (Lloyd) Ryvarden, Mycotaxon 38: 101, 1990.**

DESCRIPTION: Ryvarden (2004b).

DISTRIBUTION: known only from Amazonas (the type locality) and Bahia states, Brazil (Torrend 1920, Góes-Neto 1999, Ryvarden 1990, 2004b).

Species excluded from *Amauroderma*

Some *Amauroderma* species reported from Brazil belong in other genera. Most authors (Furtado 1967, 1981, Ryvarden 1984, 1990, Moncalvo & Ryvarden 1997) consider *A. angustum* (Berk.) Torrend (1920) and *A. infulgens* (Lloyd) Torrend (1920) synonyms of *Humphreya coffeata* (Berk.) Steyaert.

Amauroderma longipes (Lév.) Torrend (1920) is now accepted as *Haddowia longipes* (Lév.) Steyaert (Steyaert 1972, Moncalvo & Ryvarden 1997, Ryvarden 2004b).

Amauroderma brittonii Murrill (Sotão et al. 1991, 2003) is a synonym of *Laetiporus persicinus* (Berk. & M.A. Curtis) Gilb. (Ryvarden 1985, Moncalvo & Ryvarden 1997).

“*Amauroderma fractipes*” reported from Bahia by Góes-Neto (1999) probably is an error for *Abortiporus fractipes* (Berk. & M.A. Curtis) Gilb. & Ryvarden.

Insufficiently known taxa and dubious names

Amauroderma auriscalpium (Pers.) Torrend, Broteria, ser. bot. 18: 131, 1920.

The taxonomic status of *A. auriscalpium* is doubtful and needs further research. This species, described from Brazil (Rio de Janeiro state), has also been reported from Bahia (Torrend 1920, Góes-Neto 1999), Rio Grande do Sul (Rick 1960), and Pernambuco (Batista 1949, Maia et al. 2002). Rick (1938), who reported *A. auriscalpium* from Rio Grande do Sul, separated it in three varieties (var. *omphalodes*, var. *praetervisum*, var. *subrenatus*). Furtado (1981) treats these as three independent species: *A. omphalodes*, *A. praetervisum*, and *A. camerarium*, respectively. After examining other specimens that Torrend and Rick identified as *A. auriscalpium*, Furtado (1981) referred Torrend's identification to *A. schomburgkii* and Rick's to *A. camerarium*. Batista (1949) and Maia et al. (2002), who cite *A. auriscalpium* from Pernambuco state, did not publish description or specimen data.

Amauroderma fuscoporia Wakef., Bothalia 4(4): 948, 1948.

Ryvarden & Johansen (1980) and Moncalvo & Ryvarden (1997) cite this species only from the type locality (Zimbabwe, Africa), and neither Furtado (1981) nor Ryvarden (2004b) cite material from Brazil. Sotão et al. (2002), who first cited *A. fuscoporia* from Pará state, did not later repeat that observation (Sotão et al. 2008). The species' presence in Brazil remains doubtful and deserves further research.

Amauroderma juruense (Henn.) Torrend, Broteria, ser. bot. 18: 142, 1920.

The species has been collected only once, from the type locality in Amazonas State, Brazil. Furtado (1981), who was unable to locate the type specimen, noted its similarity to the type of *Polyporus ocellatus* (synonym of *A. schomburgkii*). According to Moncalvo & Ryvarden (1997), no authentic specimen has been preserved and this name should be abandoned. *Amauroderma juruense* is considered a dubious name in the CBS database (<<http://www.cbs.knaw.nl>>).

Amauroderma nigrum sensu Rick, Iheringia, sér. bot. 7: 211, 1960, nom. inval.

This species was reported from Rio Grande do Sul State, Brazil, by Rick (1960). According to Furtado (1981) and CABI database (<<http://www.indexfungorum.org>>), *A. nigrum* is a synonym of *A. subrugosum*. However, Zhao (1989), who examined the types of *A. nigrum* and *A. subrugosum*, concluded that they represent two distinct species. Moncalvo & Ryvarden (1997) stated

that the taxonomic status of this species needs further re-evaluation, a view we endorse. Furtado (1981), who did not find any material from the neotropics, questioned the occurrence of *A. nigrum* in Brazil and Ryvarden (2004b) also does not cite the species from neotropical regions. Rajchenberg (1987) did not treat it in his study of Rick's polypore types.

Amauroderma picipes Torrend, Broteria, ser. bot. 18: 132, 1920.

The species is known only from the type locality in Bahia state, Brazil, and no modern description has been found in the literature. Neither Furtado (1981) nor Ryvarden (2004b) cite *A. picipes* for the region. According to Moncalvo & Ryvarden (1997) no authentic specimen has been preserved and this name should be abandoned.

Key to *Amauroderma* species in Brazil

- 1. Pores 1–3 per mm 2
- 1. Pores 3–9 per mm 7
- 2. Abhymenial surface laccate *A. renidens*
- 2. Abhymenial surface dull to slightly glittery (but not with laccate appearance) 3
- 3. Basidiome fragile when dry, gloeopleurous hyphae
 present in the context and trama *A. brasiliense*
- 3. Basidiome coriaceous to woody when dry, gloeopleurous hyphae absent 4
- 4. Abhymenial surface with black glabrous zones alternating with dark-brown
 tomentose zones covered with hair-like elements
 giving a hirsute appearance *A. trichodermium*
- 4. Abhymenial surface glabrous to finely velutinous 5
- 5. Pilear cover as a derm, basidiospores 9–11 × 7.5–9 µm *A. rude*
- 5. Pilear cover as a cortex, basidiospores 12–16 µm in longest dimension 6
- 6. Basidiospores broadly ellipsoid, 12–15 × 9–12 µm *A. calcigenum*
- 6. Basidiospores subglobose to globose, 13–16 × 13–15 µm *A. aurantiacum*
- 7. Basidiospores up to 10 µm diam 8
- 7. Basidiospores 10–17 µm long 13
- 8. Pores 7–8 per mm, basidiospores smooth *A. coltricioides*
- 8. Pores 3–7 per mm, basidiospores ornamented 9
- 9. Pores 3–4 per mm *A. boleticeum*
- 9. Pores 5–7 per mm 10
- 10. Pilear cover a derm 11
- 10. Pilear cover a cortex 12
- 11. Context white to cream, pileus reddish brown *A. sprucei*
- 11. Context yellowish-brown near cinnamon to gold-brown, pileus
 blackish-brown, blackish-gray, or darker, close to black *A. subrugosum*

12. Pileus flexible, abhymenial surface glittery (but not laccate),
skeletal hyphae strongly dextrinoid *A. exile*
12. Pileus coriaceous to woody, abhymenial
surface dull, skeletal hyphae not dextrinoid *A. schomburgkii*
13. Basidiospores ellipsoid 14
13. Basidiospores globose to subglobose 16
14. Basidiospores distinctly ornamented, wider than 10 µm *A. camerarium*
14. Basidiospores with a very fine ornamentation, almost invisible even at
1000× magnification, 6–10 µm wide 15
15. Pores 4–5 per mm, basidiospores 10–12.5 × 6.25–7.5 µm *A. oblongisporum*
15. Pores 5–7 per mm, basidiospores 12–15(–16) × 8–10 µm *A. elegantissimum*
16. Context with two black resinous bands 17
16. Context homogeneous without black bands 18
17. Context yellowish to cinnamon, basidiospores yellowish with conspicuous
endosporic projections, 11–14 × 10–13 µm *A. omphalodes*
17. Context white, becoming yellowish brown, basidiospores hyaline to subhyaline,
with few distinct endosporic projections,
10–13(–14) × (9–)10–12 µm *A. praetervisum*
18. Pileus blackish-gray to almost black, basidiospores
15–17 × 13–15 µm *A. unilaterum*
18. Pileus dark reddish brown, basidiospores up to 15 µm long 19
19. Pilear cover a cortex, pores 3–5 per mm *A. pseudoboletus*
19. Pilear cover a derm, pores 5–9 per mm 20
20. Pores 5–8 per mm, basidiospores with few conspicuous endosporic projections,
(7.5–)9–11 × (6–)8–10 µm *A. subrugosum*
20. Pores 6–9 per mm, basidiospores with very conspicuous endosporic projections,
which give a verrucose appearance to the spore wall,
12–15 × 10–13 µm *A. fasciculatum*

Acknowledgments

We extend our thanks to Cony Decock, Mario Rajchenberg, and Tatiana Baptista Gibertoni who kindly reviewed the manuscript. Thanks also to George Carr for English improvements. We are grateful to FAPESP (04/04310-2) and CNPq (PIBIC/IBt) for financial support.

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